No. 17-1754C
(Judge Tapp)

IN THE UNITED STATES COURT OF FEDERAL CLAIMS

TUTOR PERINI CORPORATION,

Plaintiff,

v.

THE UNITED STATES.

DEFENDANT'S PRETRIAL MEMORANDUM OF CONTENTIONS OF FACT AND LAW

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DEFENDANT'S MEMORANDUM OF CONTENTIONS OF FACT AND LAW

Defendant, the United States, respectfully submits this Memorandum of Contentions of Fact and Law in accordance with the Court's December 9, 2021 Trial Management Order (ECF No. 50) and Appendix A, paragraph 14 of the Rules of the United States Court of Federal Claims (RCFC).

INTRODUCTION

This trial involves a Government contractor who was tasked with rebuilding the West Runway and associated taxiways at Andrews Air Force Base (AAFB), a critical national security facility outside Washington, D.C.. The new runway was not only expected to last for decades, but was also expected to be free of the types of defects that could cause life-threatening damage to the aircraft and personnel that use the runway. The plaintiff, Tutor Perini Corporation (TPC) had recently completed a similar construction project at John F. Kennedy (JFK) International Airport in New York. Perhaps unsurprisingly, TPC expected to use the same techniques and practices in its work on the West Runway project. But, when TPC's work failed to comply with the terms of the contract it signed with the Air Force, TPC balked at the extra work it was contractually required to perform in order to remediate its errors. Despite the fact that TPC's

work product violated unambiguous concrete specifications and contract requirements, TPC has filed this suit alleging that it was *the Air Force* that was responsible for the extra work that had to be performed, and decrying the Air Force's insistence that TPC's work comply with the critical safety features found in the concrete specifications. At trial, we will prove that TPC's own construction failures required the extensive remediation efforts at issue in this case, and that, as a result, TPC's claims for damages resulting from extra work, construction delays, and "economic waste" fall squarely at the feet of the plaintiff, not the Air Force.

STATEMENT OF FACTS

I. The Contract

1. On April 20, 2010, the Air Force awarded a task order to remove and reconstruct the West Runway at AAFB (Task Order No. FA3002-08-D-0011-0005). The notice to proceed was issued on May 18, 2010.

2. The West Runway handles significant Air Force traffic, including combat aircraft. It is also the primary runway for Air Force One (i.e. the plane that the President of the United States flies on when traveling by air). As a result, the West Runway is colloquially known as "The President's Runway."

3. The contract was administered by the Air Force Civil Engineer Support Agency (AFCESA). At the time of award, the contract value was $81 million ($72 million in contract value, and $9 million in material contingency value).

4. The initial substantial completion date provided in the contract was September 19, 2011. The project was timed to ensure the delivery of a fully functioning, new runway for Air Force One prior to the busy campaign season of 2012 (i.e., delivery by September 2011).

5. Due to numerous construction delays caused by multiple recurring construction quality problems, the Government did not take beneficial occupancy of the West Runway until after the 2012 election, on December 7, 2012.

6. On March 3, 2014, the Air Force contracting officer issued a "Notification of Debt" informing TPC that the Air Force intended to seek a refund of $13,119,301 for the reduced service life of the airfield pavement that TPC constructed, along with the increased maintenance costs associated with TPC's work, and credits for deductive changes and liquidated damages.

7. On October 23, 2014, TPC submitted a request for equitable adjustment (REA), and on April 21, 2015, submitted an updated REA to include the REA of electrical subcontractor MC Dean. TPC submitted a Contract Disputes Act (CDA) claim to the Air Force on April 28, 2016, and submitted an updated claim on August 8, 2017.

8. The contracting officer did not issue a final decision regarding the submitted CDA claim. On November 8, 2017, TPC filed a complaint in this Court, seeking breach of contract damages in the amount of $38,078,272. Since filing its complaint, TPC has adjusted its claimed damages downward to $37,817,323.

9. Various issues plagued the Andrews runway project throughout the pre-construction and construction process. These issues delayed completion of the project for over a year. The primary issues affecting construction, and which are at the center of this case, were (1) delays to the start of construction, which then necessitated a compressed schedule, and (2) extensive efforts throughout 2012 to repair deficiencies in certain concrete panels and to replace entirely other concrete panels. As will be detailed below, the runway is divided into nearly 7,000 concrete panels, each 20 feet by 20 feet. The extensive panel repair and replacement activities necessitated by TPC's construction failures caused significant additional delay.

10. TPC bases a large portion of its claimed damages on the costs of concrete panel replacements that it alleges were unnecessary, and the additional costs it alleges were due to delays to construction (both before construction could begin, and as a result of the extensive panel repair and replacement work).

11. TPC claims $10,100,005 for panel replacements. It claims $9,747,851 for delay-related costs as well as $2,329,108 for delay-related "inefficiencies," for a total of $12,076,959. Thus, the concrete panel replacement damages and the delay damages that TPC alleges (most of which ultimately derive from the panel replacements) total $22,176,964.

12. The remainder of TPC's claimed damages consist primarily of: (1) $6,011,097 for outstanding requests for change orders (many of which are also tied to the delays discussed below); (2) $4,891,081 for its REA preparation costs and professional services; (3) $2,944,291 for the claims of its subcontractor MC Dean (most of this claim is predicated on the same delay allegations TPC advances); and (4) $2,601,219 in unpaid contract balance. The total of these claims is also partially offset by $819,018 in Government credits, which does not include the potential of any offset as a result of the reduced lifespan of the runway described by the March 3, 2014 Notification of Debt.

II. Initial Construction Delays

13. TPC did not begin production paving until May 5, 2011, almost a year after the notice to proceed. The delay to construction was due to several issues.

A. Four Week Delay To Beginning Construction

14. TPC's original plan had been to begin construction activities in mid-August 2010, a few months after receipt of the notice to proceed. The April 2010 task order specifically stated that environmental permits were necessary, and that the Government "estimated" that the required wetlands permits would be secured on August 2, 2010.

15. There was a modest delay in securing the necessary permits and the estimated date slipped by four weeks. TPC began construction activities in mid-September 2010.

16. This initial four-week delay was due primarily to the timing of the wetlands permits. However, the date for securing those permits, because their issuance was dependent upon Maryland state officials, was only ever an estimate.

17. Indeed, TPC did not submit its environmental protection plan until August 12, 2010. Under the terms of the contract, that submittal was subject to a 30-day review and approval period by the Air Force.

18. TPC also submitted certain plans, including its Project Management Plan, Quality Control Plan, and Health and Safety Plan, four to six weeks late.

19. More significantly, even setting aside the delay connected to securing environmental permits, the far more significant initial delays that followed – primarily due to site preparation problems and TPC's inability to generate a suitable concrete mix and test strip – were attributable to TPC's generally poor quality control. Indeed, TPC easily made up the minor delay due to the environmental permits and was back on schedule soon thereafter.

B. Site Preparation Delays

20. Prior to pouring any concrete for the runway itself, TPC first had to remove the old runway and prepare a level and properly graded base layer to accept the new runway.

21. This process took longer than planned for several reasons that are not attributable to the Air Force. TPC elected to use the crushed demolition debris from the old runway in the base course for the new runway. TPC's method for mixing the crushed material with other materials resulted in some unevenness when applied. As a result, TPC had to work to even this base layer out before it could run the final required density tests to confirm sufficient compaction in the base layer.

22. In addition, TPC experienced issues with the backfill initially selected for the project. As a result, it had to secure a new backfill supplier located farther from the base, adding further to TPC's delay.

23. TPC also failed to proof roll the subgrade, which is a process by which a contractor ensures that the subgrade will not deform when heavy equipment passes over it, which would then prevent proper installation of overlying pavement layers. This failure to proofroll then required TPC to redo work.

24. During this period in late 2010, progress on preparing the site for pouring the concrete for the new runway was also slowed by numerous weather delays. The costs associated with weather delays would not be properly levied against either party.

C. TPC's Failure To Produce A Suitable Concrete Mix And Test Strip

25. The contract required TPC to secure Government approval of both (1) the concrete mix it intended to use, and (2) a test strip of the concrete before it could proceed with paving.

26. The contract specifications set forth the required average strength of the concrete mix along with the acceptable proportions for the mix.

27. A test strip is a lane of poured concrete using the proposed mix. The test strip affords the Air Force the opportunity to witness and monitor the pouring process as well as the resulting product before proceeding with primary runway construction. This step is critical because, as discussed below, issues can appear at different stages of a pour and those issues might not be evident if only a completed, dried section of concrete is reviewed, or if the project is allowed to proceed solely on the basis of an approved proposed mix, as opposed to an approved strip of poured concrete.

28. Section 32 13 11 of the contract set forth the specific concrete technical specifications that are central to this case. Subsection 1.5.6 "Test Section" required that "at least

10 days but not more than 60 days prior to construction of the concrete pavement, a test section shall be constructed as part of the production paving area at an outer edge as indicated on the drawings." This test section would be used "to develop and demonstrate to the satisfaction of the Contracting Officer the proposed techniques of mixing, hauling, placing, consolidating, finishing, curing, initial saw cutting, start-up procedures, testing methods, plant operations, and the preparation of the construction joints."

29. Section 1.5.6 required TPC to "use the same equipment, materials, and construction techniques on the test section as will be used in all subsequent work."

30. Section 1.5.6 also required TPC to "construct the test section meeting all specification requirements and being acceptable to the Contracting Officer in all aspects, including surface texture." The section warned that "[f]ailure to construct an acceptable test section will necessitate construction of additional test sections at no additional cost to the Government. Test sections allowed to be constructed as part of the production paving which do not meet specification requirements shall be removed at the Contractor's expense."

31. A proposed concrete mix can display problems during the test strip process in several ways.

32. For example, it may require excessive hand work and smoothing on the surface while it is still wet. This can present problems because hand-smoothing brings more "paste" to the surface. Paste is the smooth mix of cement and water that coats the fine and coarse aggregate to form concrete.

33. Paste on its own, however, is not as strong as paste bound to aggregate. Thus, once a paste layer dries, it leaves an unacceptably weak top surface, especially for concrete exposed to heavy use, like a runway.

34. That weaker-than-designed surface increases the risk of foreign object damage (commonly referred to as FOD in the aviation industry), because pieces of the weaker surface may break off and chip during runway use. *Any* debris on a runway used by jets, and in particular, any debris on a runway used by military fighter jets with their low-hanging engines, poses a risk of being sucked into the engines and causing engine damage – and potential loss of life.

35. A test strip may also exhibit excessive slumping along the sides as it is poured. Here, the contract called for the runway to be poured in 20-foot wide single lane pours that would be 19.5 or 15 inches thick, depending on the area of the runway.

36. In other words, each lane would come out in a single 20 foot-wide layer, already at the proper thickness, and that lane would (ideally) be put in place through a single continuous pour. As a lane is poured, if the sides of the poured lane do not hold straight – that is, if they start to bulge in the middle, or slump – this indicates an unacceptable concrete mix.

37. The bulging may indicate that the water ratio is too high in the concrete, or that the ratio of chemical admixtures, or plasticizers, (an agent used to reduce water) is too high.

38. Slumping concrete requires immediate corrective work, which corrective work itself can be prone to surface defects.

39. Another problem that may arise during the test strip pour is improper consolidation. Improperly consolidated concrete is often prone to producing excessive "bug holes" (air holes) as it dries. These holes, like any surface defect, increase the risk of FOD. The more holes, the greater the increase in risk.

40. TPC submitted its first concrete mix for Air Force approval on October 28, 2010, approximately a month-and-a-half after beginning with construction.

41. TPC did not, however, secure approval of a proposed mix and test strip until July 2011.

42. Despite not receiving approval of the final mix proportions until later, the Government allowed TPC to proceed with runway pouring on May 5, 2011, after the Government rated TPC's fourth test strip acceptable.

43. The issues with TPC's first three failed proposed test strips were significant and resulted in a nearly six-month delay (November 2010 through April 2011).

44. The keystone to TPC's early project delay claims is TPC's allegation that the Air Force improperly refused to permit TPC to use a certain chemical admixture in its concrete mix and test strip production.

45. Chemical admixtures are chemical additives that are used in pouring concrete to reduce water in the mix.

46. Section 2.3 of the concrete specifications addressed chemical admixtures, and section 2.3.1 "General Requirements" stated that "Type F and G high range water reducing admixtures…shall not be used."

47. Other subsections specifically addressed parameters of use for various types of admixtures. Section 2.3.3 "High Range Water Reducing Admixture" further cautioned that such high range water reducers could be used in the concrete mixture "only when its use is approved or directed."

48. Having recently used a high range water reducer in its project at JFK airport, TPC would have preferred to simply replicate the same process and use the same chemical admixtures at Andrews. But, the contract specifically forbid the use of such admixtures, and the Air Force, based on express contract provisions, declined to approve the use of a high range water reducer.

49. So, for its first three, rejected test strips, TPC tried alternative admixtures that it hoped would increase the fluidity and workability of the concrete, all the while trying to convince the Air Force that it should disregard the concrete specifications and permit TPC to use a high range water reducer nonetheless.

50. The fact that the contract specifically precluded the use of this type of admixture was not arbitrary (it is a common requirement across Department of Defense and Federal Aviation Administration specifications). The increased fluidity and workability of the concrete may make it desirable for the crew pouring the concrete, but it also introduces increased risk of segregation, paste at the surface, and excessive early shrinkage.

51. This type of concrete is also susceptible to increased inconsistency from batch to batch. These tendencies increase the risk of early failure and FOD.

52. TPC poured its first test strip on February 17, 2011. The Government rejected this test strip immediately. It exhibited surface tears, shrinkage, slumping sides, crooked dowel bars, and crooked edges.

53. TPC poured its second test strip on March 12, 2011. TPC itself recognized that this test strip was so bad that it was clearly unacceptable, and abandoned it without even finishing the pour.

54. TPC poured its third test strip on March 22 and 25, 2011. The Air Force rejected this test strip because it exhibited significant surface deficiencies. The deficiencies included the excessive use of grout to repair surface defects already evident, and excessive bug holes.

55. TPC does not allege that its first three test strips should, in fact, have been approved by the Air Force or that those test strips did not suffer from deficiencies that justified their rejection. Rather, TPC alleges that, had the Air Force permitted TPC to use a high range water

reducing admixture as it had used at JFK airport, TPC would not have encountered problems with its first three test strips sufficient to justify their rejection.

56. For its fourth test strip, poured on April 20, 2011, TPC used a chemical admixture that complied with the contract specifications. Indeed, it was an admixture that TPC could have used from the outset of the project. The Government approved this fourth test strip and allowed TPC to proceed with production pavement in May 2011.

57. Despite the fact that TPC's own concrete expert has testified that there was nothing stopping TPC from using an approved chemical admixture from the very beginning of the project, and despite the fact that TPC's concrete work was so deficient during this time period that it failed even to attempt to finish one of the test strips, TPC attributes *all* of the resulting delay and additional work *to the Air Force* for refusing to disregard the contract's concrete specifications and permit TPC to use the high range water reducer it had used at JFK airport.

58. After receiving approval of the test strip, TPC continued to fine-tune the concrete mix as it poured lower-traffic areas of the project. Through this process, TPC decided to change from the 50/50 cement/slag mix it had been using, to a 60/40 mix.[1] The Government approved this change in the mix ratio in July 2011. TPC could now proceed with full production paving of the runway.

59. The foregoing demonstrates an aspect of TPC's recurring difficulties with quality control. Just as TPC had difficulty developing a suitable concrete mix and an appropriate and manageable process for placing that concrete without issue, it also experienced recurring difficulties with certain repeated deficiencies in the concrete as poured.

[1] Slag is another form of cement that can be mixed with traditional Portland cement in a concrete mix to enhance certain characteristics. Changes in this ratio can affect the workability and strength of the concrete.

60. Indeed, the Air Force had to issue more than 100 non-compliance reports (NCRs) throughout the course of the project. NCRs are official notifications from the Air Force to TPC that its practice or work product failed to comply with contractual requirements.

61. It is also important to note that, due to its inability to quickly produce a suitable test strip, TPC lost several months of non-winter construction time. This condensed the schedule, requiring TPC to speed up its performance. TPC's recurrent quality control problems, discussed further below, were due in part to the accelerated schedule its own actions imposed upon it.

III. Construction Quality Problems and Resulting Panel Replacements

62. When completed, the West Runway was approximately 9,300 feet long and 200 feet wide. The concrete was 19.5 inches thick in areas subject to more stress (*e.g.*, the runway ends, ramps) and 15 inches thick in other areas.

63. The runway was poured in 10 lanes. The runway was subdivided by 11 longitudinal joints (defining the 10 lanes) and 571 transverse joints (cutting across the runway) into 5,700 slabs or panels (both terms are used interchangeably). Additional construction areas (*e.g.,* entry/exit ramps) increased the total number of panels to 6,935.

64. As of June 30, 2012, the Air Force had determined that over 30% of the panels required repair or replacement, pursuant to the express terms of the contract. Through a series of orders, the Air Force instructed TPC to repair or replace these deficient panels.

65. The first order to remove and replace panels occurred on October 11, 2011. The Air Force ordered additional removals through July 26, 2012, and replacement panels continued to be placed through October 6, 2012.

66. The number of panels requiring replacement eventually rose to over 900 (13 percent of the total). TPC only accepted responsibility for a small number of the ordered replacements.

In its Request for Equitable Adjustment, it challenged the order to replace 837 of the total replaced panels.

67. The issue of panel replacements is the most significant issue in this case, as the combined costs of the panel replacement work and the delays associated with that work contribute to a majority of TPC's overall claimed damages. The panels at issue can be divided into multiple groups based on the particular construction defect and the contract specification that the Air Force identified as the basis for the replacement order.

68. Understanding the underlying reason for virtually *any* panel replacement order is critical to understanding the different categories of panel replacements. The Air Force's primary concern in the administration of this project was the delivery of a runway that would perform as designed for the expected period of time.

69. Whenever the as-constructed new runway exhibited deficiencies, the contract provided express guidance for when such deficiencies could be repaired (and how any such repair should be accomplished), and when such deficiencies could *not* be repaired, but instead required full replacement of the panel. In any event, a repair or replacement both arise from TPC's pervasive quality control problems.

70. The underlying concern in any such instance – whether to repair or replace – turns on the perceived relative risk of premature failure due to a repair of the identified deficiency. In other words, if a construction deficiency requires an extensive repair, or if the deficiency is of the type that could be reasonably assumed to be prevalent throughout the panel (though unseen at the surface at that time), then the risk of failure is unacceptably high and replacement is required.

71. This is true for an extensive repair because repaired concrete poses a greater risk of failure than the original well-poured concrete. It is true for unseen similar defects just below the surface because those hidden defects will cause recurrent similar problems.

72. Failure for runway concrete means chipping, cracking, breaking, et cetera – in simplest terms, defects that will introduce debris to the runway and/or leave cracks or voids that can worsen in the freeze-thaw cycle, resulting in more chipping or cracking, and posing an increased risk of catastrophic foreign object damage to aircraft.

A. Excessive Grinding (133 panels replaced)

73. The contract specifications allow for diamond grinding of the concrete surface to correct defects and achieve the required level of smoothness. As discussed above, surface deficiencies increase the risk of damage to aircraft (and personnel) because surface deficiencies are the most likely to cause the breaks or chips that lead to foreign object damage.

74. The contract's concrete specifications limit grinding to 10 percent of the area of any sublot at a maximum depth of one-quarter inch (emphasis added):

> **1.3.3.9 Diamond Grinding of PCC Surfaces**
> In areas not meeting the specified limits for surface smoothness and plan grade, high areas shall be reduced to attain the required smoothness and grade, except as depth is limited below. High areas shall be reduced by grinding the hardened concrete with an approved diamond grinding machine after the concrete is 14 days or more old. Grinding shall be accomplished by sawing with an industrial diamond abrasive which is impregnated in the saw blades.
> . . .
> Grinding equipment that causes ravels, aggregate fractures, spalls or disturbance to the joints will not be permitted. <u>The area corrected by grinding the surface of the hardened concrete shall not exceed 10 percent of the total area of any sublot. The depth of diamond grinding shall not exceed 1/4 inch.</u> All pavement areas requiring plan grade or surface smoothness corrections in excess of the limits specified above, shall be removed and replaced in conformance with paragraph REPAIR, REMOVAL, REPLACEMENT OF NEWLY CONSTRUCTED SLABS.

75. The contract further specifies the exact remedy for excessive grinding: "All pavement areas requiring plan grade or surface smoothness corrections in excess of the limits specified above, shall be removed and replaced in conformance with REPAIR, REMOVAL, REPLACEMENT OF NEWLY CONSTRUCTED SLABS." *Id.*

76. Using the dimensions of the poured runway, a sublot equates to roughly 11 panels for the 19.5 inch thick panels. Therefore, the total amount of permissible grinding area across a sublot equates to roughly 10% of that eleven-panel area.

77. On this issue, TPC concedes, as it must, because it is the result of a simple mathematical calculation, that more than 10% of the affected area of 93 panels required grinding. Indeed, in his expert report, TPC's concrete expert notes that, in some cases, "sublots were effectively ground over 100% of their area."

78. TPC seeks to avoid responsibility for the replacement of these diamond-ground panels in two ways. First, TPC misinterprets the concrete specifications by extrapolating the limits on grinding to the whole runway. It claims that 634 panels out of the total number of the panels in the runway could be ground *completely* (1 panel out of every 11). The 93 panels with grinding across more than 10% of the surface are therefore permissible, it claims, because 93 is less than 634.

79. This interpretation fails for several reasons. First, TPC ignores that grinding is assessed under the contract by sublot, and not for the entirety of the runway.

80. Second, the grinding at issue was concentrated in certain lanes, indicating a poor quality construction process during that portion of the pour. And, some of the grinding was necessary because TPC had dragged burlap over rain-affected areas, in direct contravention of the contract (the contract forbids pouring in the rain).

81. TPC personnel also misinterpreted the contract's concrete specification to permit more than 10% of a sublot to be diamond-ground because TPC claims that tapering or feathering at the edges of the ground area, *which is created by diamond-grinding*, should not count in the 10% calculations. That is, if there is a bump on a concrete panel that must be diamond-ground, rather than grind only the bump, a contractor would also grind some amount of area around the bump so as to create a smooth transition from the bump to the rest of the panel. This additional grinding, in TPC's opinion, does not constitute grinding for purposes of the concrete specifications.

82. TPC's interpretation offends the very reason why the contract limits the amount of permissible grinding.

83. The contract's concrete specifications limit grinding because it weakens the runway surface and increases the risk of FOD. Grinding can also affect surface drainage and lead to an increased risk of hydroplaning.

84. The contract balances these risks against the likely need to make grinding repairs to surfaces by spreading that risk as a low percentage over a larger area (a sublot, as opposed to a single panel). Grinding in excess of the limits within that sublot area, which TPC concedes that it did, creates a risk that the Air Force explicitly contracted out of accepting.

85. Under TPC's approach, it could have ground down a 634-panel section in the middle of the runway and that would have been permissible if there had been no other grinding on the runway. That interpretation directly contradicts the "spread the risk" approach codified in the contract.

86. More fundamentally, even if the contract's concrete specifications were ignored and the diamond-ground feathering were not included in the area calculations, TPC cannot prove

what percent of each concrete panel or sublot was diamond-ground due to defects versus how much was diamond-ground as part of a feathering or tapering process.

87. TPC did not separately record or document such grinding distinctions, and TPC's own concrete expert admits that he does not know whether the percentage that was diamond-ground for a particular sublot is less than 10%, even excluding feathering.

88. In addition to the total *area* of grinding that was permitted, the contract restricted grinding to a depth of no more than a quarter-inch. Contract, ¶ 1.3.3.9.

89. In order to ensure that the runway was smooth in compliance with concrete specifications – that is, had no excessive bumps – TPC conducted profilograph surveys of the surface. These surveys show the "elevations" of the concrete.

90. Included among the 113 panels that the Air Force required TPC to replace due to grinding issues were 20 panels that had to be replaced for excessive grinding *depth* based on survey data that TPC claims were submitted in error.

91. TPC submitted corrected data after re-testing. But, the Air Force refused to accept the corrected data because it believed that, at that point, it was impossible to determine the baseline thickness, and therefore, whether the grinding had in fact been too deep (over the contractually-limited one-quarter inch). In addition, the 20 panels in question had already begun to demonstrate issues with pop-outs.

B. Rain Damage (20 Panels Replaced)

92. On August 15, 2011, a rainstorm passed over Andrews Air Force Base.

93. TPC continued to place concrete as the storm approached and it was slow to protect the freshly poured concrete once the storm arrived.

94. The Air Force documented evidence of surface damage due to the rain on 20 slabs, and ordered that TPC replace those panels.

95. The contract's concrete specifications state: "Do not commence placing operations when heavy rain or other damaging weather conditions appear imminent. . . . Any slab damaged by rain or other weather shall be completely removed full depth, by full slab width, to the nearest original joint, and replaced at the Contractor's expense." Contract, ¶ 3.3.1.

96. The contract takes a strict position on protection from rain and rain damage because the introduction of additional water (rain) to wet cement compromises the surface and increases the risk of FOD.

97. Rain presents the additional problem of introducing extra water into the concrete mix itself as it is prepared while exposed to the elements.

98. TPC claims that the replacement order was improper on the basis of petrographic analyses it subsequently submitted. The contract, however, does not identify petrographic analysis as a means to circumvent the effect of paragraph 3.3.1, especially here where the evidence of surface damage was apparent to the naked eye.

99. The Air Force concluded that TPC's failure to adhere to the contract specifications during a rain event had increased the risk of FOD with respect to these panels. The contract permitted the Air Force to order removal and replacement of the panels.

C. Excessive Spall Repairs

100. A "spalled edge" is a chipped or cracked edge. The contract limited spall lengths on joints to no more than 15 percent of the length of the edge, and concrete panels that failed to meet this specification were to be removed and replaced. "New pavement slabs that are broken, have spalled edges, or contain cracks, shall be removed and replaced, as specified hereinafter at no cost to the Government." Contract, ¶ 3.9.4. "Not more than 15.0 percent of each slab's longitudinal joint edge shall be spalled. Slabs with spalls exceeding this quantity, regardless of

spall size, shall be sawn full depth to remove the spalled face (on pilot-lanes), or removed, as directed." Contract, ¶ 3.9.1.

101. Each concrete panel was 20 square feet, thus spalls could not exceed three feet of any edge. The Air Force identified and ordered the replacement of 218 panels that exhibited spall repairs of greater than 15 percent (i.e., three feet) of the edge in length.

102. In addition to the replaced panels, a total of 1,030 spalls had to be repaired.

103. TPC argues that the order to replace these panels was improper because it was based on the length of the spall *repairs*, and not necessarily on the length of the spalls themselves. However, as was the case with the diamond-grinding calculations, TPC failed to record the lengths of each spall it repaired, prior to repairing them.

104. Thus, TPC cannot prove its contention that there is a material difference in the lengths between the spall repairs and the spalls themselves.

105. Regardless, TPC's contention fails because spalled edges increase the future risk of FOD for a runway, not just because of the spalls themselves, but because a spall repair also carries with it an increased risk (since repairing a spalled edge requires sawing away the spall and then patching).

106. Spalled edges would never be left on a new runway. They must be repaired, or the panel must be replaced, because the chipped edge presents a risk of debris.

107. Once the repair is made, as is the case with any concrete repair, the repaired surface presents a higher risk of premature deterioration or failure – that is, an increase in the risk of FOD. This is simply because repaired concrete, with the introduction of new joints between old concrete and the patch or repair, presents a higher risk of premature failure than any well-constructed original concrete (*i.e.*, concrete poured and requiring no initial repairs).

108. The contract underscores this fact repeatedly as it seeks to balance between the increased risk that flows from repairs with the accepted fact that some repairs will likely be required in any large-scale concrete project like a runway.

109. Just as the contract limits how much grinding is permissible before replacement is required (10 percent of the area of a sublot), the contract limits how much spall length can be repaired before replacement is required. The contract sets the balance point – risk versus allowing for some repair – at 15 percent of the cumulative edge of a panel. That is the maximum amount of compromised edge that is considered acceptable.

110. The compromised edge going forward is necessarily the repaired portion of the edge, that is, the length of the *repair*. If an edge had a spall only one inch in length, but the contractor elected to saw away and patch 20 feet of edge, then the Air Force would be able to order the replacement of that panel under the contract, because the cumulative length of the compromised edge would be greater than 15 percent and pose an unacceptable risk.

111. TPC's reliance on the length of the *spalls*, rather than the length of the *repairs*, misses the entire point of the contract specification (and of all such specifications that balance the inherent forward-going risk of repairs versus the need to allow for some repairs).

112. A portion of the replacements based on excessive spall repairs (47 panels) involved "transverse joint spalls," as opposed to "longitudinal joint spalls" – that is, spalls on the cross-runway slab edges.

113. TPC argues that these replacements were not supported by the contract because the contract does not specifically mention transverse spalls.

114. This characterization is inaccurate, as specification 3.9.4 directs the repair of any spall. Specification 3.9.1, which sets the 15 percent limit, only mentions longitudinal spalls.

115. However, there is no difference in risk profile for a repaired edge on the longitudinal axis versus the transverse axis. The end result in either case is an edge that is not seamless virgin concrete, but instead a patch. It would make little sense to allow unlimited repairs to two edges of a slab, and to limit the repairs to the other two edges.

D. Mudballs (251 Panels Replaced)

116. Mudballs were a persistent problem throughout the construction of the runway.

117. Mudballs are lumps of foreign material (mud, usually with a high concentration of clay) that appear within the concrete.

118. The presence of a significant number of mudballs at the surface of the concrete is a sign of serious concern for a runway.

119. A mudball will not hold in place – it will be washed out by rain or knocked out by contact. Once removed, a mudball leaves a hole or depression in the surface of the concrete. That hole then presents an area of compromise that can chip and break at the edges, increasing the risk of FOD.

120. A surface void left behind by a mudball may also grow larger, either through impacts or the freeze-thaw cycle, which further compromises the concrete surface.

121. The presence of numerous mudballs on the surface of newly poured concrete presents an additional risk. A mudball problem points to poor construction practices – most likely, poor quality control during the mixing or pouring process that allowed significant amounts of foreign material not only to contaminate the mix, but also to bind up into balls (rather than being dispersed throughout the mix).[2]

[2] As will be discussed in other sections below, the presence of foreign objects in the concrete was a recurrent problem in this project (mud, separator fabric, and other debris). This generally indicates poor stockpile management. In other words, TPC failed to keep its piles of aggregate and other base materials clean. It also likely failed to maintain a buffer layer between the

122. In that scenario, it is very likely that more mudballs would be dispersed throughout the concrete slab. Additional mudballs locked deep within the concrete would likely pose little future risk. However, additional mudballs just beneath the surface layer would be invisible to the naked eye. Where mud, rather than solid concrete, is immediately beneath the surface layer, the surface is very susceptible to early failure – chipping away and resulting in a new void on the surface of the concrete after the mudball is displaced.

123. The number of mudballs that began to appear on the surface of the newly poured runway during construction was alarming to the Air Force. Paragraph 3.9.5 (Repair of Weak Surfaces) of the contract provided:

> Weak surfaces are defined as mortar-rich, rain-damaged, uncured, or containing exposed voids or deleterious materials. Slabs containing weak surfaces less than 1/4 inch (6 mm) thick shall be diamond ground to remove the weak surface. . . . Slabs containing weak surfaces greater than 1/4 inch (6 mm) thick *shall be removed and replaced* in accordance with paragraph: Repair, Removal and Replacement of Newly Constructed Slabs. (emphasis added)

124. Thus, under the contract, a void that extends beyond the one-quarter inch surface layer cannot be corrected with grinding. Instead, the panel must be replaced. In accordance with this provision, the contracting officer directed TPC to remove and replace all panels with such surface mudballs that could not be corrected with grinding.

125. The mudball problem was so significant and the number of panel replacements so high that this single issue began to delay the completion of the project significantly.

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material it was accessing and the ground. When this is not done, or if the aggregate piles are not kept on a prepared or hardened platform (such as concrete slabs), then when the base material is scooped out of the pile the excavator can dig too deeply and into the ground below, thereby introducing soil (dirt and clay) into the concrete mix.

126. As a result, the contracting officer elected in October 2012 to allow TPC to repair the remaining panels with mudballs, provided the problem could be isolated to a suitably small area of a given panel, rather than replace the entire panel.

127. The contracting officer set the maximum area of total repairs on a panel at less than 0.2 square feet (the equivalent of a six-inch diameter repair core hole).

128. TPC claims that the area limitation that the contracting officer set for mudball repairs was overly restrictive, and that a larger, two square feet area of repairs should have been allowed (similar to the total amount of area that could be repaired on spall edges), or that the repair method used for smaller foreign material pop-outs, which consisted of removing and repairing with a six-inch diameter core, should have also been used for mudballs. Allowing these approaches, TPC asserts, would have made nearly all of the replacements due to mudballs unnecessary. In fact, despite the extensive presence of mudballs in many concrete panels, TPC contends that not a single panel with mudball damage should have been replaced, and that the Air Force should have permitted TPC to repair all of this damage by drilling holes into the surface and coring the mudballs. TPC Pretrial Memorandum (ECF No. 64 at 11).

129. TPC's contention ignores the significant difference between a mudball and other surface void defects, including foreign material pop-outs. A void that appears for an unknown reason, or because of the presence of a foreign object – like a stray piece of trash – that is caught in the surface of the concrete may be appropriate for repair using a coring method only because in those instances there is no reason to conclude that the problem is endemic. In other words, if a piece of debris lodges in the surface of the concrete when it is wet, it may be appropriate to allow repair of the resulting void because there is no reason to assume that an increased risk exists that additional objects lurk just below the surface. This is not the case with a mudball.

130. As discussed above, a mudball indicates an issue with quality control of the aggregate stockpiles and/or the processes for preparing and pouring the concrete mix. At some point from stockpile to pouring, clay and dirt was introduced into the mix in significant enough quantities to form balls.

131. The presence of a significant number of mudballs on the surface supports the reasonable conclusion that there is a heightened risk of additional mudballs near the surface (it would generally be reasonable to assume even mudball distribution throughout the slab). Those unseen mudballs near the surface are points of weakness that pose a significant risk of dislodging and leaving a new void on the surface. It is that risk in particular that justified the Air Force to order replacement rather than repair of the panels with mudballs on the surface.

E. Deleterious Materials (68 Panels Replaced)

132. More generally than the specific mudball problem, TPC's quality control problems with managing its stockpiles, the concrete mix, and concrete pour process produced a general pattern of foreign material appearing in the surface layer of the concrete.

133. As with mudballs, the presence of foreign material, or the voids left behind by washed away foreign material, present increased risk of additional surface voids due to additional foreign material just beneath the surface.

134. TPC contends that the approach the contract mandates for the presence of deleterious material generates an inherent conflict. The basis for this argument is the fact that paragraph 2.2.2.4 (Deleterious Materials) contemplates the presence of deleterious materials in the aggregate and allows for up to two percent of such material to exist across the mix.

135. According to TPC, this acknowledgment of the fact that foreign material is considered an allowable feature of the mix contradicts any contractual provisions that mandate

removal and replacement for the appearance of such material at the surface where voids will form (including paragraph 3.9.5).

136. TPC contends that two percent of a slab by weight would mean that up to 925 pounds of foreign material would be permissible in a single slab.

137. This assertion makes little sense. The deleterious materials referred to in the contract are materials in the aggregates, received from the aggregate sources, that are detrimental to the concrete. These deleterious materials, which are tested for and identified prior to pouring, must be distinguished from foreign materials that are introduced during the mixing or pouring of the concrete (like the clay and dirt that produces mudballs).

138. The allowance for deleterious material in the mix simply reflects the fact that it can be expected that some deleterious material will likely exist within large quantities of procured raw aggregates used for the concrete.

139. The expectation would be, however, that such material would be dispersed evenly throughout the concrete through good processes. A very small percentage of deleterious material dispersed evenly throughout the concrete mix would not even be noticeable at the surface.

140. But, during the West Runway project, the foreign material problems (including mudballs) were identified precisely because they appear in concentrated forms on the surface. Deleterious materials dispersed throughout the mix do not produce lumps and balls that leave voids on the surface of the concrete, or that lurk just beneath the surface waiting to be knocked loose to leave a new void.

141. In other words, the panel replacements based on foreign material were not ordered because of the presence of deleterious materials in the aggregate in the mix, which is the issue that paragraph 2.2.2.4 addresses and allows for in small quantities. Instead, the panel

replacements were necessary because the panels exhibited externally introduced *foreign* material at the surface, and the resulting voids. *This problem* could only be due to poor material and processing maintenance. Permissible levels of deleterious material contained in the originally procured aggregate would not have produced these surface defects.

F. Interior Spalls And Defects (142 Panels Replaced)

142. The Air Force identified panels for replacement that exhibited interior (*i.e.*, non-edge) deficiencies.

143. The vast majority of the disputed panel replacements in this category concern the nature of repairs performed to repair spalls (voids or chips) that appeared within the interior surface field of the panels.

144. Concrete specification 3.9.5, "Repair of Weak Surfaces," defines weak surfaces as "mortar-rich, rain-damaged, uncured, or containing exposed voids or deleterious materials." Slabs with weak surfaces less than a quarter-inch thick were to be repaired by diamond grinding, while slabs with weak surfaces deeper than a quarter-inch were to be removed and replaced.

145. Without first seeking, or obtaining, approval from the Air Force, TPC proceeded to use rectangular patches to repair these internal defects by removing material to a depth of <u>one inch</u> and filling in with a patch compound. This method was not described by the concrete specifications as an appropriate way of addressing weak surfaces, and was obviously not the diamond-grinding approach set forth in section 3.9.5.

146. When the Air Force discovered this approach, the Air Force instructed TPC to discontinue the practice, and then developed standards going forward, as an accommodation for addressing the issue without TPC having to replace every affected panels.

147. This accommodation permitted TPC the ability to repair interior defects using the coring method (as opposed to shallower, rectangular patches), which coring method had always

been the approved method for repairing slabs with voids deeper than one-quarter inch (a deeper void cannot be repaired through grinding).

148. This long-standing criterion also set a limit on the total size of cores allowed on a panel, as well as limits on how close a core could be to an edge, before the replacement of the whole panel would be required.

149. TPC's failure to seek and gain approval for its approach exacerbated this problem. The Air Force discovered the issue after many rectangular patches had already been installed. As a result, there was no way to ascertain what the depth of the repaired defect had been, or what size core could have repaired it.

150. It was also no longer possible to ascertain whether the void had been caused by a mudball or other foreign material (which, as discussed above, could indicate a more extensive problem lurking just beneath the surface of the slab).

151. The replacements that were ordered in this category were based on panels that exhibited improper repairs that covered an unacceptably high surface area or were too close to another repair or edge. The surface area limit was set at 0.2 square feet, which is very slightly larger than the area of a six-inch diameter core (approximately 28.25 square inches).

G. Cracked And Damaged Panels (47 Panels Replaced)

152. Paragraph 3.9.2 of the concrete specifications required the contractor to remove and replace any slabs that had cracks deeper than 25 percent of the design thickness.

153. TPC contends that many of the panels exhibiting cracks or other damage (36 of those removed) were in fact damaged during the removal process of other panels that the contracting officer ordered to be replaced.

154. Even if TPC could prove that all of these cracks were the result of the removal process of other panels (and not simply defective construction techniques), such a fact may only be relevant if those other panel replacements are deemed improper.

155. Panel repair and replacements are a part of every project, a point that both parties concede. It fell to TPC to conduct that process in a way that does not damage other panels to the point of requiring replacement.

H. Sawcutting (10 Panels Replaced)

156. Sawcutting damage to certain panels was due to TPC's mishandling of equipment during the process of repairing or replacing panels.

157. While conducting repair and replacement work, TPC repeatedly dropped a large concrete saw on several concrete panels, resulting in gouges of varying depths and lengths.

158. There does not appear to be documentation of the precise dimensions of the individual cuts across the surface of panels that required replacement. But, photographs indicate that the lengths and depths were often significant. The repair of these cuts would have required patches that would have exceeded what the Air Force considered acceptable for the maximum amount of repaired surface in a panel (0.2 square feet).

I. Poor Consolidation (7 Panels Replaced)

159. During construction, TPC and the Air Force routinely pulled test cores from completed sections to review for issues, including consolidation, which is the even distribution of materials throughout the depth of the slab.

160. At one point, a test core revealed poor consolidation. As a result, additional cores were taken to determine the extent of the problem.

161. TPC argues that the additional cores did not uniformly demonstrate poor consolidation, and that therefore, replacement of the panels was not warranted.

162. The Air Force's position was based in part on the fact that coring will never be a foolproof method of identifying larger issues. A core is a small diameter view of one area of concrete that may easily fail to capture a dispersed but significant problem.

163. The fact that some consolidation issues were found in this area, of varying grade across just a few cores, suggested to the contracting officer that there could be a problem more generally in that area of the pour.

164. This conclusion was supported further by the fact that the original consolidation issue was discovered when a core was taken near a longitudinal edge. That edge was in an area where TPC had had issues with the laying of the concrete and had done a lot of handwork during the pour. Thus, it was reasonable to conclude that the consolidation could be a more general problem in that area. That day's pour, for whatever reason, had demonstrated multiple problems.

IV. Subcontractor Claims

165. TPC advances a claim based on the request for equitable adjustment of its electrical sub-contractor, MC Dean. TPC values MC Dean's claim at over $2.9 million.

166. MC Dean itself, however, values its claim at $2,503,128, based on its own expert report.

167. That figure consists of three primary categories of claimed damages: unresolved change orders from MC Dean, pass-through change orders from MC Dean subcontractor Alliance Construction Solutions, and increased costs that MC Dean alleges it incurred due to delays in the construction process (primarily the delays to the start of construction and delays due to panel repair and replacement activities, as discussed above).

168. The last category – costs due to construction delays – makes up the bulk of this claim – over $1.6 million (MC Dean also claims $140,000 for "consultancy costs").

169. As discussed above, TPC's inability to generate a suitable test strip and the persistent quality control problems that plagued the project delayed the completion of this project by over a year. The additional costs MC Dean incurred due to those delays are TPC's responsibility, not the Government's.

V. Design Clarifications And Alternate Delivery Proposal Damages

170. TPC claims that a number of so-called "design errors" caused it to incur delay damages and additional costs.

171. Many of these design clarifications were made long before TPC commenced production paving, including revisions regarding joint/light layouts, dowel bar spacing, crown location along Taxiway N, light can locations, and others.

172. Because TPC failed for months to produce an acceptable test strip, these design revisions never caused TPC to redo work or prevent TPC from progressing along its critical construction path timeline. Rather, TPC's description of these design clarifications is merely an attempt to paint the Air Force's design as deficient, without the ability to prove any corresponding practical effect on TPC's construction progress.

173. In addition, TPC claims that the Air Force "directed Tutor Perini to spend considerable time, effort, and management resources to come up with an "Alternate Delivery Proposal" (ADP) and then refused to compensate TPC for the additional time and work involved. TPC Pretrial Memorandum (ECF No. 64 at 5-6).

174. In fact, TPC was forced to develop an ADP because of its own delays and construction failures. Internal e-mail communications at TPC reveal that TPC's Senior Vice President in charge of all civil project operations urged his fellow executives "to really promote

an acceleration package from [March 1, 2011] thru [November 15, 2011], which was how JFK was handled."

175. Thus, contrary to TPC's current litigation position, the facts reveal that TPC again tried to mimic its practices from a different project, and now attempt to foist the idea of accelerating TPC's work onto the Air Force in a bid to recoup additional monies.

ISSUES OF FACT AND LAW TO BE RESOLVED BY THE COURT

1. Whether the contract permitted the Air Force to deny TPC's use of a high range water reducer in developing its initial concrete mix and pouring an acceptable test strip.

2. Whether TPC proved that it would not have encountered similar delays in its development of an acceptable test strip if it had used a high range water reducer prohibited by the contract's concrete specifications.

3. Whether TPC's inability to produce an acceptable test strip for more than four months, and TPC's failure to timely submit an environmental protection plan, project management plan, quality control clan, and health and safety plan, are sources of concurrent delay that negate the Government's liability for any alleged delays resulting from design clarifications prior to the commencement of production paving.

4. Whether the contract's concrete specifications permitted TPC to ignore some diamond-ground areas when calculating the percent of each sublot that was diamond ground.

5. Whether TPC violated contract provisions by pouring concrete in the rain, and whether the contract permitted the Air Force to require replacement of the damaged concrete panels as a result.

6. Whether the contract's concrete specifications permitted TPC to ignore portions of its spall repair work when calculating the percent of each panel edge that contained spalls, and

whether, even if the concrete specifications permitted TPC to ignore certain portions of spall repairs, TPC accurately documented and recorded the length of each spall.

7. Whether the contract permitted the Air Force to require the replacement of panels with mudball damage, or whether the contract required the Air Force to permit TPC to drill holes into the runway surface to repair *every* mudball found.

8. Whether the contract's concrete specifications permitted the Air Force to require the replacement of concrete panels that contained excessive amounts of deleterious materials.

9. Whether the contract's concrete specifications permitted the Air Force to require the replacement of concrete panels that contained interior spalls and defects in excess of 0.2 square feet.

10. Whether the contract permitted TPC to bill the Air Force for replacing panels that TPC damaged in the process of repairing and replacing other panels, whose removal was appropriate under the contract.

11. Whether, after repeatedly dropping a large concrete saw on concrete panels, TPC appropriately billed the Air Force for the damage that TPC's saw caused to those concrete panels.

12. Whether the contract permitted the Air Force to require TPC to remove and replace concrete panels that exhibited poor consolidation in excess of contract requirements.

13. Whether the Air Force is liable for the delay and extra work damage claims that TPC alleges were the result of concrete panel replacement when those panel replacements were permissible under the contract.

14. Whether TPC's subcontractor delay and extra work claims are properly charged to the Air Force when those claims are the direct result of TPC's own failures with regard to concrete placement.

15. Whether any design clarifications in the early stages of the West Runway project materially delayed TPC's construction schedule when TPC concurrently failed to submit required plans and was unable to produce an acceptable test strip and begin production paving.

16. Whether TPC's alternate delivery proposal was implemented to make up for the delays TPC caused in producing an acceptable concrete mix and test strip.

17. Whether the Air Force may be billed for the extra time and work described by TPC's alternate delivery proposal.

DISCUSSION OF APPLICABLE LEGAL PRINCIPLES

A. Legal Standard For An Equitable Adjustment Claim

"In general, an equitable adjustment is a fair price adjustment designed to account for a change in the contract." *Raytheon Co. v. United States*, 747 F.3d 1341, 1353 (Fed. Cir. 2014); *see also DG21, LLC v. Mabus*, 819 F.3d 1358, 1362 (Fed. Cir. 2016) (stating the "general rule that '[t]he essence of a firm fixed-price contract is that the contractor, not the government, assumes the risk of unexpected costs'" (quoting *Lakeshore Eng'g Servs., Inc. v. United States*, 748 F.3d 1341, 1347 (Fed. Cir. 2014))).

"To receive an equitable adjustment from the Government, a contractor must show three necessary elements – liability, causation, and resultant injury." *Servidone Const. Corp. v. United States*, 931 F.2d 860, 861 (Fed. Cir. 1991); *see SAB Const., Inc. v. United States*, 66 Fed. Cl. 77, 84-85 (2005), *aff'd*, 206 F. App'x 992 (Fed. Cir. 2006) ("To prove 'that it is entitled to an equitable adjustment, a federal contractor must show liability, causation, and injury, and it must prove that the government somehow delayed, accelerated, augmented, or

complicated the work, and thereby caused the contractor to incur specific additional costs, and that those costs were reasonable, allowable, and allocable to the contract.'" (quoting 64 Am. Jur. 2d Public Works and Contracts § 199 (2004))). The plaintiff must make a showing as to each element—liability, causation, and injury—by a preponderance of the evidence. *Bath Iron Works Corp. v. United States,* 34 Fed. Cl. 218, 231 (1995)*, aff'd,* 98 F.3d 1357 (Fed. Cir. 1996); *see Delhur Indus., Inc. v. United States,* 95 Fed. Cl. 446, 454 (2010).

B. Legal Standard For Delay Damages

"When a contractor seeks an equitable adjustment for government-caused delay, 'the contractor has the burden of proving the extent of the delay, that the delay was proximately caused by government action, and that the delay harmed the contractor.' " *LCC-MZT Team IV v. United States*, 155 Fed. Cl. 387, 457 (2021) (quoting *Wilner v. United States*, 24 F.3d 1397, 1401 (Fed. Cir. 1994)). The general rule is that "[w]here both parties contribute to the delay neither can recover damage[s], unless there is in the proof a clear apportionment of the delay and expense attributable to each party." *Id.* (citing *Blinderman Constr. Co. v. United States*, 695 F.2d 552, 559 (Fed. Cir. 1982)). "Delays generally fall into one of three categories: (1) excusable and compensable; (2) excusable but not compensable; and (3) not excusable." *Id.*

"The Government's liability for delay-related damages is limited to those delays that it caused and that hew to the project's critical path." *Fireman's Fund Ins. Co. v. United States*, 92 Fed. Cl. 598, 666 (2010) (citing *Wilner v. United States*, 23 Cl. Ct. 241, 244 (1991)). Determination of the critical path is necessary for determining compensable delay because "only construction work on the critical path ha[s] an impact upon the time in which the project [is] completed." *Ultimate Concrete, LLC v. United States*, 141 Fed. Cl. 463, 480 (2019) (alterations in original) (quoting *Wilner*, 24 F.3d at 1399 n.5)).

C. Legal Standard For Constructive Change And Accelerated Performance

"To demonstrate a constructive change, a plaintiff must show (1) that it performed work beyond the contract requirements, and (2) that the additional work was ordered, expressly or impliedly, by the government." *BES DesignBuild, LLC v. United States*, ---Fed. Cl.--- 2021 WL 5621326 at *33 (November 30, 2021) (citing *Bell/Heery v. United States*, 739 F.3d 1324, 1335 (Fed. Cir. 2014)). "If the government expressly or implicitly ordered work that was outside the scope of the contract, or if the government was at fault in causing work to be done outside the scope of the contract, a constructive change has occurred and plaintiff is entitled to an equitable adjustment of price." *Id*.

A claim of constructive acceleration arises when the Government requires a contractor to adhere to the original performance deadline set forth in the contract even though the contract provides the contractor with periods of excusable delay that entitle the contractor to a longer performance period.

Although different formulations have been used in setting forth the elements of constructive acceleration, the requirements are generally described to include the following elements, each of which must be proved by the contractor: (1) that the contractor encountered a delay that is excusable under the contract; (2) that the contractor made a timely and sufficient request for an extension of the contract schedule; (3) that the Government denied the contractor's request for an extension or failed to act on it within a reasonable time; (4) that the Government insisted on completion of the contract within a period shorter than the period to which the contractor would be entitled by taking into account the period of excusable delay, after which the contractor notified the Government that it regarded the alleged order to accelerate as a constructive change in the contract; and (5) that the contractor was required to expend extra resources to compensate for the lost time and remain on schedule. *Fraser Const. Co. v. United*

States, 384 F.3d 1354, 1361 (Fed. Cir. 2004) (citing *Norair Eng'g Corp. v. United States,* 229 Ct. Cl. 160, 666 F.2d 546, 548 (1981) (compressing these five requirements into three essential elements—excusable delay, an order to accelerate, and acceleration with attendant costs)); *R.J. Lanthier Co.,* 04–1 B.C.A. (CCH) ¶ 32,481, at 160,688, 2003 WL 22953681 (A.S.B.C.A. 2003); *Commercial Contractors Equip., Inc.,* 03–2 B.C.A. (CCH) ¶ 32,381, at 160,261–62, 2003 WL 22232953 (A.S.B.C.A. 2003).

Constructive acceleration can be found if the Government demands prompt performance while simultaneously denying extensions for excusable delays or granting them only belatedly. *Fraser Const. Co.*, 384 F.3d at 1363 (quoting *Norair*, 666 F.2d at 549 ("Where the Government refuses (for whatever reason) to tell the contractor until the end of the project just what delay is excusable and what is not, the contractor is under considerable additional pressure to accede to a request because it does not know whether it will be found liable for liquidated damages.")).

D. Legal Standard For A Breach Of The Implied Duty Of Good Faith And Fair Dealing

The implied covenant of good faith and fair dealing is inherent in every contract. Restatement (Second) of Contracts § 205. That implied duty "requires a party to refrain from interfering with another party's performance or from acting to destroy another party's reasonable expectations regarding the fruits of the contract." *Bell/Heery*, 739 F.3d at 1334-35. The "implied covenant guarantees that the government will not eliminate or rescind contractual benefits through action that is specifically designed to reappropriate the benefits and thereby abrogate the government's obligations under the contract." *Id.* at 1335.

An implied covenant, however, cannot "create duties inconsistent with the contract's provisions." *Precision Pine & Timber, Inc. v. United States*, 596 F.3d 817, 831 (Fed. Cir. 2010).

Accordingly, "there can be no breach of the implied . . . covenant of good faith and fair dealing where the contract expressly permits the actions being challenged, and the defendant acts in accordance with the express terms of the contract." *Century Exploration New Orleans, LLC v. United States*, 745 F.3d 1168, 1179 (Fed. Cir. 2014) (emphasis added); *see also Metcalf Constr. Co. v. United States*, 742 F.3d 984, 991 (Fed. Cir. 2014) (explaining that "an act will not be found to violate the duty (which is implicit in the contract) if such a finding would be at odds with the terms of the original bargain, by conflicting with a contract provision"); *David Nassif Assocs. v. United States*, 644 F.2d 4, 12 (Ct. Cl. 1981) ("[T]he assertion of a legitimate contract right cannot be considered as violative of a duty of good faith and fair dealing.").

PROPOSED CONCLUSIONS OF LAW

A. Equitable Adjustment Claim

1. TPC cannot meet its burden with respect to its claim for an equitable adjustment.

2. TPC bears the burden of showing that the Government delayed, accelerated, or complicated the work *and* caused TPC to incur specific additional costs, but TPC cannot prove either liability or causation in this case.

3. The contract's concrete specifications expressly set forth the technical requirements for the West Runway's concrete panels. Those requirements included not only the technical parameters of the concrete mix to be used, but also standards for the ultimate end product that TPC was contractually obligated to provide.

4. The contract also explicitly set forth the remediation methods that TPC was required to undertake in the event that concrete panels failed to meet specifications.

5. TPC cannot prove liability because the Air Force availed itself of its express contractual rights in requiring TPC to remove and replace deficient concrete panels. TPC's arguments to the contrary are based on incorrect interpretations of these contract provisions.

6. Because TPC's quality control measures failed to produce acceptable concrete panels and because the Air Force merely applied relevant contractual provisions in order to address those quality problems, TPC cannot meet its burden of showing liability for TPC's extra work and delays, or proximate causation by the Air Force for such additional costs.

B. Delay Damages Claim

1. TPC cannot meet its burden of showing that it is entitled to an equitable adjustment for any Government-caused delay.

2. TPC is not entitled to recover any amount of delay damages because TPC cannot demonstrate that any delays were both proximately caused by the Government and that the delay harmed TPC.

3. "Delays generally fall into one of three categories: (1) excusable and compensable; (2) excusable but not compensable; and (3) not excusable." *LCC-MZT Team*, 155 Fed. Cl. at 457.

4. Here, TPC's delays are either not excusable, or excusable, but not compensable.

5. TPC encountered minor, excusable, but not compensable weather related delays.

6. The rest of the delays TPC claims damages for, however, are not excusable. These delays were the result of deficient quality control and deficient concrete panels that failed to meet contractual specifications.

7. All delays stemming from TPC's inability to produce an acceptable test strip before commencing production paving are TPC's fault, not excusable, and thus not compensable.

8. TPC knew from the outset that the concrete specifications prohibited the use of high range water reducing chemical admixtures. Despite this fact, TPC attempted to convince the Air Force to permit TPC to use such chemical admixtures, to no avail.

9. Ultimately, after a months-long delay, TPC used a chemical admixture that it could have used in its first test strip, and was able to produce an acceptable test strip and proceed to

production paving. The months-long delays associated with the test strip process are attributable to TPC, its quality control measures, and inappropriate focus on using prohibited chemical admixtures.

10. Delays stemming from TPC's removal and replacement of defective concrete panels are similarly not excusable because they resulted from TPC's failure to produce panels that complied with the concrete specifications and the subsequent contractually-mandated remediation actions.

11. Even if TPC could show that the Air Force may have contributed to *certain* delays (such as in the acquisition of Maryland state environmental permits), any damages stemming from these delays were not proximately caused by the Air Force because TPC simultaneously failed to submit required reports and an acceptable test strip, which would have prevented TPC from moving forward with the project in any event. "Where both parties contribute to the delay neither can recover damage[s], unless there is in the proof a clear apportionment of the delay and expense attributable to each party." *Blinderman Constr. Co.*, 695 F.2d at 559.

C. Constructive Change Claim And TPC's Alternate Delivery Proposal

1. TPC is not entitled to recover any amounts for its constructive change claims as a result of any accelerated performance under the ADP that TPC developed.

2. One requirement of a constructive change claim is that the contractor encountered a delay that is excusable under the contract. *Fraser Const. Co*, 384 F.3d at 1361.

3. Here, the evidence shows that TPC failed in its efforts to timely produce an acceptable test strip so that it could commence production paving.

4. As a result, TPC developed a plan to accelerate its work at Andrews, which as the TPC executive who advocated for such a plan noted, "was how JFK was handled."

5. Any need for such accelerated work, however, was due to TPC's failure to meet contract specifications with regard to the test strip. TPC's technical failures do not constitute "excusable delay" and thus cannot satisfy one of the required prongs under *Fraser Construction Company*.

6. In addition, any other delays that occurred in late 2010, prior to TPC's development of the ADP, are also insufficient bases for awarding damages for the reasons described above – i.e., TPC's other failures independently caused it delays. "When performance is, arguendo, 'delayed by multiple causes acting concurrently, and only one cause is excusable, i.e., where other causes lie with the contractor, courts and boards have adopted the approach that neither party will benefit from the delay. Consequently, in a 'Changes' clause analysis, a contractor cannot recover acceleration costs flowing from a concurrent delay, unless the record supports a clear apportionment of the delay and expense attributable to each party." *LLC-MZT Team IV*, 155 Fed. Cl. at 486.

D. Claim For Breach Of Good Faith And Fair Dealing

1. TPC is not entitled to recover any amounts for a breach of the implied duty of good faith and fair dealing.

2. An implied duty of good faith and fair dealing cannot "create duties inconsistent with the contract's provisions." *Precision Pine & Timber*, 596 F.3d at 831.

3. Thus, "there can be no breach of the implied…covenant of good faith and fair dealing where the contract expressly permits the actions being challenged, and the defendant acts in accordance with the express terms of the contract." *Century Exploration New Orleans*, 745 F.3d at 1179.

4. An act "will not be found to violate the duty (which is implicit in the contract) if such a finding would be at odds with the terms of the original bargain,…by conflicting with a contract

provision." *Metcalf Constr. Co.*, 742 F.3d at 991. Asserting a "legitimate contract right cannot be considered as violative of a duty of good faith and fair dealing." *David Nassif Assocs.*, 644 F.2d at 12.

5. Here, TPC claims that the Air Force breached the duty of good faith and fair dealing by refusing to permit TPC to use a chemical admixture that was expressly prohibited by the concrete specifications, and by insisting that TPC adhere to the explicit contractual provisions regarding the remediation of deficient concrete panels.

6. TPC cannot meets its burden of proof here because all of the breaches it attributes to the Air Force are specifically permitted – and often *required* – by the contract.

7. TPC's theory assumes an incorrect interpretation of multiple contract provisions, and has no basis in fact even assuming the Court were to adopt TPC's view of the concrete specifications. This is because TPC failed to record many data points regarding, for example, spall lengths or diamond-ground areas that could demonstrate error on the part of the Air Force.

8. Moreover, TPC wrongly relies on an "economic waste" doctrine in an effort to completely circumvent multiple critical safety provisions found in the contract's concrete specifications. According to TPC's view of the law, TPC was free to ignore virtually any contract provision dealing with concrete requirements if it could merely show that taking some post-hoc actions to repair its errors would have been cheaper than complying with the contract terms in the first place.

9. This is not the law, and TPC cannot demonstrate as a factual matter that the deficient panels it produced were otherwise adequate for their intended purpose.

E. TPC's Damages Methodology Is Flawed And Its Calculations Unreliable

1. Even if the Court were to find liability on the part of the Air Force – and it should not – TPC cannot meet its burden of proof with respect to damages.

2. TPC served an expert report, written by the same construction scheduling consultant that drafted TPC's REA. The methods used by TPC's scheduling consultant in both his REA and expert report are flawed and unreliable.

3. That expert report ignores the first two controlling delays on the project, and wrongly attributes all of the early delays to the lack of Maryland state environmental permits. TPC's damages report further ignores its own delay in beginning runway demolition activities (the first activity on the critical path).

4. TPC's damages claim is further compromised by its attribution of delays in late 2010 and early 2011 to the Air Force, rather than TPC, as a result of TPC's test strip failures.

5. TPC's scheduling consultant also improperly cites to various delays for which TPC is purportedly entitled to damages, despite the fact that these delays had no impact on TPC's ability to finish the project on schedule. Included in these alleged delays are delays in answering requests for information, delays in approving key submittals, delays in providing permits and access, and delays due to the need for security escorts.

CONCLUSION

Ultimately, TPC accepted responsibility for only a small percentage of the nearly 1,000 deficient concrete panels it placed at Andrews Air Force Base. TPC insists that a project requiring the repair or removal of more than 30% of all the concrete panels placed was perfectly reasonable. And TPC will urge the Court at trial to find that concrete panels that had trash like sneakers, soda cans, fabric, and other deleterious materials was to be expected, and that TPC should not have had to replace such panels if it could find a cheaper alternative – despite the unambiguous terms of the contract. The Court should find, however, that the Air Force was entitled to receive a runway that was described in the contract, and the Air Force's insistence that it receive such a runway does not entitle TPC to an additional $40 million in taxpayer funds.

February 7, 2022

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